09421625

ABSTRACT OF THE DISCLOSURE

In one aspect, the invention includes a method of forming a roughened layer of platinum, comprising: a) providing a substrate within a reaction chamber; b) flowing an oxidizing gas into the reaction chamber; c) flowing a platinum precursor into the reaction chamber and depositing platinum from the platinum precursor over the substrate in the presence of the oxidizing gas; and d) maintaining a temperature within the reaction chamber at from about 0°C to less than 300°C during the depositing. In another aspect, the invention includes a platinum-containing material, comprising: a) a substrate; and b) a roughened platinum layer over the substrate, the roughened platinum layer having a continuous surface characterized by columnar pedestals having heights greater than or equal to about one-third of a total thickness of the platinum layer.